

## **Modeling Fact Sheet**

### **February 25, 2002**

#### Statewide Operations Modeling - CALSIM II

- Specifically coded, does not use a commercial modeling tool as engine
- Jointly developed by Department of Water Resources (DWR) and US Bureau of Reclamation (USBR)
- Statewide coverage of State Water Project and Central Valley Project
- Long Term (74 years), monthly time step
- Purpose to set Oroville operation boundaries for SWP operations

#### Local Operation Modeling – New model under development

- Use Vista modeling tool from Acres American
- Development by Acres American and Engineering and Operations (E&O) Workgroup
- Short Term (<20 years), hourly time step
- Oroville – Thermalito Complex to just downstream of the Afterbay return to the Feather River
- Purpose to refine Oroville operations for power generation within operation boundaries for SWP operations

#### Oroville Reservoir Temperature Modeling – New model under development

- Modeling tool not yet selected, probable explicit numerical model
- Development by E&O Workgroup
- Short Term (<20 years), probable daily time step
- Potential complexity from pump back and seasonal temperature operations
- Purpose is prediction of reservoir release temperature

#### Thermalito Forebay – Afterbay Temperature Modeling – New model under development

- Modeling tool not yet selected, probable statistical basis
- Development by E&O Workgroup
- Short Term (<20 years),
- Purpose is prediction of temperature of pump back, diversions, release to Feather River

#### Feather River Temperature Modeling – Further development of existing model

- RMA-10 based model
- Developed at UCD, used by DWR
- Reports data hourly
- Extends from Feather River Diversion Dam to confluence with Sacramento River
- Purpose is predication of temperatures in the Feather River downstream of Oroville Reservoir

#### Flow Stage Modeling – Under Development

- Investigating Corp of Engineers Comprehensive Flood Control Study modeling
- Purpose is prediction of water surface elevation at various locations at various flow rates

#### Feather River Geomorphic Modeling – Under Development

- Development by DWR
- May require flow information from E&O workgroup
- Purpose is prediction of sediment transport impacts in Feather River downstream of Oroville Reservoir

#### Terrestrial Habitat Modeling – Under Consideration

- Development by Environmental Workgroup
- May require flow-stage information from E&O workgroup

#### Watershed Modeling – Under Consideration

- Currently attempting to define purpose of this modeling

#### IFIM/PHABSIM - Under Consideration

- IFIM (Instream Flow Incremental Methodology) was developed by the USFWS
- IFIM is a structured evaluation and decision making process that combines fieldwork and computer modeling.
- **PHABSIM (Physical Habitat Simulation** computer program) is a computer program used during the IFIM process that combines hydraulic data with biological criteria to predict the equivalent of available optimum habitat in a stream for particular species and life stages of fish; it generates an index to aquatic suitability (weighted useable area, WUA)

#### Economic Impact Assessment Modeling System - IMPLAN

- Computer Software and Database
- Used to develop local level input-output models that can estimate the economic impact of new firms moving into an area, professional sports teams, recreation and tourism, and many more activities